



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/730,143      | 12/09/2003  | Kouta Fukui          | FS-F03215-01        | 5961             |

37398 7590 09/26/2005

TAIYO CORPORATION  
401 HOLLAND LANE  
#407  
ALEXANDRIA, VA 22314

EXAMINER

CHEA, THORL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1752

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/730,143

Applicant(s)

FUKUI, KOUTA

Examiner

Thorl Chea

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-5, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Toya et al (US Patent No. 5,998,126), Siga et al (US Patent No. 4,332,889) and Matsumoto et al (US Patent No. 5,958,668), Suzuki et al (US Patent No. 4,211,839) and EP 1096310 (EP'310).

Toya et al discloses a photothermographic material substantially as claimed. The photographic material contains a photosensitive silver halide material, a non-photosensitive silver salt of an organic silver salt, a reducing agent for the organic silver salt, binder, and wherein silver halide having grains size from 0.01 to 0.08  $\mu$ m and silver halide including silver iodide and silver iodobromide grains having iodide content of 0.1 to 40 mole % in column 50-64; the reducing agent including the bisphenols, antifoggant including halogen substituted organic compound, and the material absorb laser having wavelength of 300 nm to 700 nm. See column 34, claims 1-12; column 16, lines 50-64; column 32, lines 20-25; column 19, lines 34-39. Siga et al silver halide containing at least 30 mole % based on the silver halide component; more preferably at least 50 mole % based on silver halide component; the silver halide may include only silver iodide i.e. 100 mole % of silver iodide; the most preferred silver halide component consisting of silver iodide and silver bromide, and the molar ratio of silver iodide to silver bromide may be

Art Unit: 1752

preferably 30/70 to 98/2, more preferably 50/50 to 95/5. The silver halide provides a practically usable post-activation type dry image forming material excellent enough in both stability and sensitivity. See column 6, lines 44-68 and column 2, lines 5-10. Matsumoto et al in column 18 discloses a bisphenol compound within the scope of the formula R-1 of the claimed invention. See compound in column 18, line 30 which contains a tertiary carbon and a methyl group.

Suzuki et al in column 15, lines 35-68, discloses a bisphenol compound and in column 16, lines 1-68 disclose that suitable reducing agent are selected depending upon the kind of organic silver salt used. Acceptable reducing agent/organic silver salt can be easily determined by a simple test. For example, a sample reducing agent is mixed with a coating solution containing the organic silver salt, and the mixed coating solution coated on a support. The reducing agent may be use as combination of two or more thereof. The combined use of two or more polyphenolic reducing agent having alkyl group at the two substitution position adjacent to the hydroxyl-substituted position of the aromatic nucleus is effective for preventing discoloration upon exposure to light. EP'310 discloses the known bisphenol that a carbon bonding the benzene ring is secondary or tertiary or primary. See the bisphenol compound on pages 6-10 and the compound (I) on page 3. It would have been obvious to the worker of ordinary skill in the art at the time the invention was made to use one or more bisphenol compound known in the art such as taught in Suzuki et al and EO'310 with a reasonable expectation of preventing discoloration of the material obtained by the combination of Toya et al (US Patent No. 5,998,126), Siga et al (US Patent No. 4,332,889) and Matsumoto et al (US Patent No. 5,958,668), and thereby provide a material as claimed.

Art Unit: 1752

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable Toya et al (US Patent No. 5,998,126), Siga et al (US Patent No. 4,332,889) and Matsumoto et al (US Patent No. 5,958,668), Suzuki et al (US Patent No. 4,211,839) and EP 1096310 (EP'310) as applied to claims 1, 3-5, 8-10 above, and further in view of above, and further in view of Toya et al (US Patent No. 5,656,419). The polyhalogenate compound of formula (H) in claim 2 has been known Toya et al (US Patent No. 5,656,419) in column 2, lines 1-18; in column 12, compound (II-a) to provide a photothermographic material with higher contrast. It would have been obvious to the worker of ordinary skill in the art at the time the invention was made to use the polyhalogen compound taught in Toya et al (US Patent No. 5,656,419) in the material obtained by the combination of the applied prior art above with a reasonable expectation of achieving a material with higher image contrast, and thereby provide a material as claimed.

4. Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toya et al (US Patent No. 5,998,126), Siga et al (US Patent No. 4,332,889), Matsumoto et al (US Patent No. 5,958,668), Matsumoto et al (US Patent No. 5,958,668), Toya et al (US Patent No. 5,656,419) and Suzuki et al (US Patent No. 4,211,839).

Toya et al discloses a photothermographic material substantially as claimed. The photographic material contains a photosensitive silver halide material, a non-photosensitive silver salt of an organic silver salt, a reducing agent for the organic silver salt, binder, and wherein silver halide having grains size from 0.01 to 0.08  $\mu\text{m}$  and silver halide including silver iodide and silver iodobromide grains having iodide content of 0.1 to 40 mole % in column 50-64; the reducing agent including the bisphenols, antifoggant including halogen substituted organic compound, and the material absorb laser having wavelength of 300 nm to 700 nm. See column

Art Unit: 1752

34, claims 1-12; column 16, lines 50-64; column 32, lines 20-25; column 19, lines 34-39. Siga et al silver halide containing at least 30 mole % based on the silver halide component; more preferably at least 50 mole % based on silver halide component; the silver halide may include only silver iodide i.e. 100 mole % of silver iodide; the most preferred silver halide component consisting of silver iodide and silver bromide, and the molar ratio of silver iodide to silver bromide may be preferably 30/70 to 98/2, more preferably 50/50 to 95/5. The silver halide provide a practically usable post-activation type dry image forming material excellent enough in both stability and sensitivity. See column 6, lines 44-68 and column 2, lines 5-10. Matsumoto et al in column 18 discloses a bisphenol compound within the scope of the formula R-2 and R-3 of the claimed invention. See compound in column 18, line 30 which contains a tertiary carbon and a methyl group, compound in line 30 and compound in line 10. The polyhalogen compound of formula (H) in claim 2 has been known Toya et al (US Patent No. 5,656,419) in column 2, lines 1-18; in column 12, compound (II-a) to provide a photothermographic material with higher contrast. Suzuki et al in column 15, lines 35-68, discloses a bisphenol compound and in column 16, lines 1-68 disclose that suitable reducing agent are selected depending upon the kind of organic silver salt used. Acceptable reducing agent/organic silver salt can be easily determined by a simple test. For example, a sample reducing agent is mixed with a coating solution containing the organic silver salt, and the mixed coating solution coated on a support. The reducing agent may be use as combination of two or more thereof. The combined use of two or more poly-phenolic reducing agent having alkyl group at the two substitution position adjacent to the hydroxyl-substituted position of the aromatic nucleus is effective for preventing discoloration upon exposure to light.

The silver halide content of 40 mole % to 100 mole % of silver iodide encompasses the scope of 0.1 to 40 mole % and 100 mole % iodide taught in Toya et al; also it has been known to use silver halide having high iodide content in Siga to provide heat developable material excellent enough in both stability and sensitivity. The bisphenol compound has been conventionally known as reducing agent for organic silver salt including that within the scope of the claimed invention which is taught in Matsumoto et al and the polyhalogen compound of formula (H) has been known in Toya et al (US Patent No. 5,656,419) to provide a photothermographic material with higher contrast. The method of determining the amount of reducing agent has been known in Suzuki et al (US Patent No. 4,211,839). The additives using the present invention such as silver iodide, bisphenol compound and polyhalogen compound has been known and old in the art. The molar ratio of polyhalogen compound to the bisphenol compound may not state therein. However, the amount of the polyhalogen and the bisphenol would have been found prima facie obvious to the worker of ordinary skill in the art would have use the sample test taught in Suzuki et al to determine the optimum amount of the polyhalogen and the reducing agent to provide a material with a material of desired color tone, and thereby provide a material as claimed.

#### ***Response to Arguments***

5. Applicant's arguments filed on June 14, 2005 have been fully considered but they are not persuasive. First, the applicants argue that "by using the specific reducing agents R-1 and R-3 together or R-1 and R-2 together, a photothermographic material is produced exhibiting high sensitivity and a pure black tone image. The effect of this combination is shown in Table 1. In Table 1, Experiment Nos. 5 and 6 each use two kinds of reducing agents and exhibit better color

Art Unit: 1752

tone (pure black tone) image, while maintaining high sensitivity; this is to be compared to Experiment 4, which only uses one type of reducing agent. Further, Experiment Nos. 8 and 9, each of which uses two kinds of reducing agents, exhibit better sensitivity in maintaining pure black tone compared to Experiment No. 7, which uses only one kind of reducing agent. Second, the applicants argue that it is respectfully submitted that the Examiner has used impermissible hindsight to "pick and choose" individual components from a wide variety of references in order to "recreate" the claimed invention. There is no teaching or suggestion to combine a high silver iodide based photothermographic material with the specific reducing agent of formula R-5 and the antifoggant of formula H in the claimed ratio.

It is the Examiner's position that the invention as claimed is a combination with known additives commonly used in the photothermographic art. The silver halide including silver iodide or silver iodobromide has been used as photocatalyst for photothermographic material. The bisphenol compound has been used as reducing agent silver ion of a silver salt of an organic acid. The specific substituents associated with the bisphenol moiety has been generically taught in prior art of record such as Suzuki et al (US Patent No. 4,211,839) and EP 1096310 (EP'310). The worker of ordinary skill in the art at the time the invention was made to use of one or more bisphenol compound in a photothermographic material with an expectation of producing highly useful silver image. The argument with respect to better sensitivity in maintaining pure black tone shown in Table 1 is not persuasive. The improvement of results is not a criteria to obviate the prima facie case of obviousness rejection. The results would have been found unexpected or surprising by the worker of ordinary skill in the art at the time the invention was made. The results is not commensurate with the scope of the invention in claims 1 wherein the material



Art Unit: 1752

contains silver halide having iodide of 40 to 100 % by mole and the combination of the reducing agent of formula (R1) and (R2 or R3) while the material shown in Table 1 contains a multitudes of additive such as polyhogenated compound and others. The criticality of silver halide having 40 to 100 % has not shown. Moreover, the reducing agent contains a bisphenol compound with an indefinite number of substituent while a specific compound I-9, 1-1, 2-3, and 3-3 has been used. "(I)t is well settled that evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which its pertains and that such evidence which is more narrow in scope than the claimed subject matter is not sufficient to rebut a prima facie case. In re Dill, 604 F. 2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979). As indicated above and in the answer, the appellants' proffered evidence is indeed considerably more narrow than the argued claims and, for this reason alone, is inadequate to rebut the prima facie case of obviousness established above."

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the silver halide including silver iodide or silver bromiodide, the polyhalogenated compound and bisphenol compound have been known in the photothermographic art as photocatalyst, antifoggant and reducing agent for silver ion. The worker of ordinary skill in the art would have use the any silver halide as photocatalyst for

Art Unit: 1752

photothermographic material including silver halide with low and high silver iodide such as taught in Siga et al; the polyhalogenated compound to stabilize or improve the fogging property of the photothermographic material; and the bisphenol compound to reducing silver ions to form a silver image. The molar ratio of the reducing agent and the polyhalogenated compound knowing the property thereof as stabilizer and reducing agent. [W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F. 2d 454, 105 USPQ 233, 235 (CCPA 1955).” Accordingly, it is believed that the invention as claimed is still proper and should be maintained.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

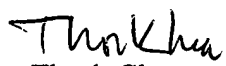
Art Unit: 1752

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thorl Chea whose telephone number is (571) 272-1328. The examiner can normally be reached on 9 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571)272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tchea   
September 12, 2005

  
Thorl Chea  
Primary Examiner  
Art Unit 1752